

ISPM'2008

FINAL PROGRAMME

THE 4th INTERNATIONAL SYMPOSIUM ON PRECISION MECHANICAL MEASUREMENTS

Hefei/Jiuhua Mountain, Anhui, China
August 25~29, 2008



Sponsored by

International Committee on Measurements and Instrumentation
National Natural Science Foundation of China
China Instrument and Control Society

Organized by

Hefei University of Technology

Co-organized by

National Taiwan University
Seoul National University
The Hong Kong University of Science and Technology
Anhui Metrological Measuring Institute



Congratulation on the 4th ISPMM'2008



It is a privilege for me to congratulate the 4th International Symposium on Precision Mechanical Measurement.

Mechanical engineering is an engineering discipline which involves the application of principles of physics for analysis, design, manufacturing, and maintenance of mechanical systems. Precision mechanical measurement is one of the fundamental subjects of mechanical engineering. It usually includes the three basic elements---- measurement, instrumentation and uncertainty, etc.

Measurement is the process of estimating the magnitude of some attribute of an object relative to some standards (unit of measurement), such as a meter. The act of measuring usually involves using a measuring instrument, such as a ruler, which is calibrated to compare the measured attribute to a measurement unit. Measurement is essential in industry, commerce, engineering, construction, manufacturing, pharmaceutical production, and electronics.

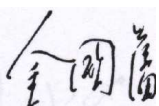
Measuring instruments are devices used to measure or compare the magnitude of physical properties. Instrumentation is the study, development, and manufacture of instruments, as for scientific or industrial use. In context of precision mechanical measurement, instrumentation refers to measuring instruments and their ability for monitoring or measuring the level of a product's performance, diagnosing errors and surface information. It is an art of science of measurement and control.

Measurement uncertainty describes a region about an observed value of a physical quantity which is likely to enclose the true value of that quantity. Uncertainty depends on both the accuracy and precision of the measurement instrument. Measurements always have errors and therefore uncertainty existed. The reduction —not necessarily the elimination— of uncertainty is the core of the concept of measurement.

Precision mechanical measurement represents the frontier of high-tech development. It is an essential part of mechanical engineering and also is the base for modern fundamental scientific research development. The theme of this symposium is the new development of modern measurement techniques. This symposium will establish a forum for metrology scientists and experts all over world to present the new advancement of the basic subjects of measurement, instrumentation and uncertainty, etc. and also give an opportunity for them to exchange views among each others.

Please accept my congratulations and best wishes for the success of the 4th International Symposium on Precision Mechanical Measurement.

Professor Jin, Guofan,

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ISPMM2008 Honorary Chairman
Academician of the Chinese Academy of Engineering

Greetings for the Success of the ISPMM 2008



As we know, measurement technology which is an important component of the information technology and a basic means to obtain information plays a very important role in modern information era. Measurement technology is the scale to evaluate a nation's development level of the science and technology.

Mechanical manufacturing industry plays very crucial role in the economic development all over the world, of which precision mechanical is the guiding technology. Nowadays, the development of advanced manufacturing technology depends on the advanced high precision measurement technology.

In order to promote academic communication of scholars and experts on modern precision measurement technology, we had successfully held the first, second and third International Symposium on Precision Mechanical Measurements (ISPMM) in Hefei in August 2002, Beijing in August 2004 and Urumqi in August 2006 respectively. Now, the fourth International Symposium on Precision Mechanical Measurements (ISPMM 2008) has been smoothly opening after preparation for more than one year.

Under the great supports of International Committee Measurements and Instrumentation (ICMI), National Natural Science Foundation of China (NSFC), China Instrument and Control Society (CIS), Hefei University of Technology(HFUT), National Taiwan University(NTU) and many famous scholars and experts all over the world, ISPMM has been held for four continuously and made great development. Compared to only 100 scholars in the first symposium, the number of scholars of ISPMM 2008 has reached about 300 people. The number of foreign scholars also has risen to 45 significantly. In addition, both the quantity and quality of the submitted papers have improved greatly. There are totally 508 abstracts of papers submitted and only 256 abstracts and full papers finally accepted in the proceedings after reviewed. We offer abstract proceedings during the symposium. Those papers will be published by SPIE and cited by Engineering Index (EI).

Under the supports of ICMI, NSFC, CSM, HFUT, NTU, with the help of many scholars, together with preparation committee's one year hard preparation efforts, I believe that this symposium will be a complete success and better than previous symposiums. I hereby express my sincere gratitude to all of them and pay tribute to all those who have made their contribution to this symposium.

Finally, I wish the symposium a great success, and all of you have a good time.

Thank you!

Fei, Yetai

Fei Yetai 费业泰

ISPMM 2008 Chairman

Board Member of ICMI

Professor, Hefei University of Technology, Hefei, China

August 2008

Welcome Message



It is my honor to welcome all of you to participate in the Fourth International Symposium on Precision Mechanical Measurements (ISPMM 2008). This ISPMM series was launched in 2002 in Hefei, and experienced in Beijing in 2004 and then held in Urumqi in 2006. It has been gradually noticed by scholars in related areas evidenced by the increasing number of attendees from the early start of around 100 to beyond 300 of this year.

Measurements cover the scopes of science and technology. Measurement methods are based on the principles of physical science that produce feasible sensors. Measuring devices employ mechanical-optical-electronic-information technologies to develop possible instruments. Measured results provide quality control and process control in product manufacturing. It also helps explain the characteristics of the object being measured. ISPMM provides a platform for worldwide scholars and engineers to exchange outcomes and opinions in the research and development of mechanical measurement science and technology. Its scopes are unlimited, from macro to nano scales, from mechanics to controls, from defects to dimensions, etc. This platform requires continuous maintenance. The ISPMM plays the role of a gardener for this academic circle. All of you are sincerely welcome to be frequent visitors.

I would like to express my sincere gratitude to Hefei University of Technology, particularly to Prof. Yetai Fei, for inviting me to join in this team. My sincere thanks are also to National Taiwan University, particularly to my colleagues in the Department of Mechanical Engineering, for supporting the ISPMM events since its birth. I am happy to see the growth of this conference. I wish everyone enjoys the presentation and communication during the conference.

Kuang-Chao Fan



ISPMM2008 Co-Chairman
Professor of National Taiwan University
Changjiang Scholar of Hefei University of Technology
ICMI Board Member, SME Fellow

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Prof. Z.G. Xu (China) Prof. S.C. Lin (Taiwan, China)
Prof. Weihu Zhou (China)

Conference Schedule in Summary

August 25: Registration 7:00 ~ 22:00

Reception Dinner 18:30

Place (1) International Peace Hotel (for attendees staying in International Peace Hotel only)

(2) Hall of Jin Yiyuan Hotel (HFUT) (锦怡园宾馆)

August 26

TIME	ITEM	VENUE
7:00 ~ 8:00	Breakfast	Hotels
8:30 ~ 9:00	Opening Ceremony	Large Lecture Hall, *AACC
9:00 ~ 9:40	Keynote Speech 1	*AACC, HFUT
9:40 ~ 10:20	Keynote Speech 2	Large Lecture Hall, *AACC
10:20 ~ 10:40	Coffee Break	*AACC, HFUT
10:40 ~ 11:20	Keynote Speech 3	Large Lecture Hall, *AACC
11:20 ~ 12:00	Keynote Speech 4	Large Lecture Hall, *AACC
12:00 ~ 13:30	Lunch	Yiyuan Restaurant (Buffet)
13:30 ~ 15:30	Oral Session A1, B1, C1, D1	Large Lecture Hall, Small Lecture Hall, Meeting Room 2 and 3, *AACC
15:30 ~ 16:00	Coffee Break	
16:00 ~ 18:20	Oral Session A2, B2, C2, D2	
18:30	Dinner	Yiyuan Restaurant, HFUT

August 27

TIME	ITEM	VENUE
7:00 ~ 8:00	Breakfast	Hotels
8:30 ~ 9:10	Keynote Speech 5	Large Lecture Hall, *AACC
9:10 ~ 9:50	Keynote Speech 6	Large Lecture Hall, *AACC
9:50 ~ 11:10	Poster Paper Presentation & Coffee Break	*AACC, HFUT
11:10 ~ 11:40	Invited Speech	Large Lecture Hall, *AACC
11:40 ~ 12:10	Exhibitors Presentation	Large Lecture Hall, *AACC
12:10 ~ 12:30	Closing Ceremony	Large Lecture Hall, *AACC
12:30 ~ 14:00	Lunch	Yiyuan Restaurant (Buffet)
14:00 ~ 17:00	Poster Paper Presentation	*AACC, HFUT
17:00	Bus Leave Hotel**	Hotels
18:30	Banquet	XueJi Shanzhuang

*AACC-Academic Activities and Conference Center, HFUT

August 28 ~ 29: Post Tour to Jiuhua Mountain

TIME		ITEM
Aug. 28	7:30	Bus Leave Hotel
	11:00	Arrive at Jiuhua Mt.
	12:00	Lunch
	Afternoon	Tour to Tiantai (Heaven Platform)
	18:30	Dinner (Vegetarian Food)
Aug. 29	Morning	Tour
	15:00	Return to Hefei (Leave for Huang Mt.)
	17:30	Arrive at Hefei

Shuttle Bus Timetable:

(From Hotel to conference venue)

Aug. 26 and 27:

Bus leaves International Peace Hotel at 8:00am.

Bus leaves Jindi Hotel at 7:30am (for breakfast at Yiyuan restaurant).

(From conference venue to hotel)

Aug. 26 Bus leaves Yiyuan Restaurant for International Peace Hotel at 20:30

Aug. 27 Bus leaves Yiyuan Restaurant for International Peace Hotel at 14:00

** (For banquet bus service)

Bus leaves International Peace Hotel at 17:00

Bus leaves Yiyuan Hotel (HFUT) at 17:00

If you miss the bus, please take the taxi to the restaurant (about 10Km from Hefei City center)

Banquet Restaurant: XueJi Shanzhuang Tel: 0551-5165777 5388587 (雪霁山庄, 合肥大蜀山下, 名人馆附近)

Aug. 28: Bus leaves International Peace Hotel at 7:30am

Bus leaves Jin Yiyuan Hotel (HFUT) at 7:30am

(住在金地宾馆的代表请到合工大锦怡园宾馆集合乘车)

Contact Us

Fei Yetai Tel: 0551-2901515

Lu Rongsheng Tel: 13605511011

Sheng Li Tel: 13865995681


Yu Xiaofen Tel: 13515607329

Liu Qiaoyun Tel: 13856040019

Shang Ping Tel: 13637090602

KEYNOTE SPEAKERS

Prof. Dr.-Ing. habil. Prof. h. c. Dr. h. c. mult. Gerd Jäger

- University-Professor at the Technische Universität Ilmenau
 - Head of the Institute of Process Measurement and Sensor Technology at the Technische Universität Ilmenau
 - Guest professor of Tianjin University of China
 - Awarding of an honorary doctorate (h.c.) by the National Technical University of the Ukraine, Kiev, 1998
 - Awarding of an honorary doctorate by the National University “Lvivska Politechnika”, Lviv, 2002
 - Awarding of the Thuringian Prize of Research
 - Member of the Academy Erfurt
 - Member of the American Society of Precision Engineering
 - Member of the International Steering Committee: International Conference on Advanced Manufacturing
 - Member of the International Steering Committee: International Conference on Mechatronics Technology
 - Member of the International Steering Committee: International Conference on Measurement Technology and Intelligent Instruments
- 
- **Research fields and Lectures:**
 - o Process Measurement and Sensor Technology
 - o Laser-based Nanomeasuring and –positioning Technology
 - o Force Measurement and Weighing Technique
 - o Temperature Measurement
 - **Setting up of the SIOS Meßtechnik GmbH Company, 1991**
 - **Publications:**
 - o about 40 patents
 - o scientific passages published in eight textbooks and specialist books
 - o about 60 publications in specialist journals
 - o about 160 lectures given at national and international scientific conferences
 - **Guest lectures held:**
 - o Technische Akademie Esslingen; 1989 – 1992, 2000, 2002, 2004
 - o Xian University of Technology, China; 1993, 1997
 - o National Institute of Metrology, China; 1993, 1996
 - o Tianjin University, China; 1993, 1996, 1998, 2001, 2004
 - o State University “Lvivska Politechnika”; 1995
 - o ITRI, CMS, Taiwan, 1997, 1999, 2001, 2002, 2003, 2005
 - o National Taiwan University, 2002, 2003
 - o University of North Carolina at Charlotte, 2004
 - o Taipei University of Technology, 2005
 - o Shanghai Institute of Measurement and Testing, 2006
 - o Stanford University, 2007
 - o Veeco Santa Barbara, 2007

Prof. Lu Bingheng

Prof. Lu Bingheng, Dean of Mechanical Engineering School, Xian Jiaotong University, academican of Chinese Academy of Engineering, member of the first and second NSFC consultative committees, convener of Mechanical Engineering Subject Evaluation Group of the State Council Degree Committee, vice council chairman of CMES and Machinery Manufacturing Technology Association.



Prof. Lu was in charge of the establishment of MOE RP&M Engineering Research Center and National Engineering Research Center of Rapid Manufacturing. Over the past few years, He has studied advanced manufacturing technology and carried out research & teaching work in rapid prototyping, biomanufacturing, micro/nano manufacturing and electronic manufacturing equipment. As the principal investigator, he led his work team to have finished more than 20 research projects including State Key Scientific and Technological Projects during the period of the 9th and 10th Five-year Plans, NSFC projects and “973” National Basic Research Programs. Prof. Lu has also obtained more than 10 invention patents, developed internationally initiated UV-based RP machine and optical-mechanical-electronic integrative rapid manufacturing equipment with international advanced level as well as a series of rapid tooling techniques, formed a set of rapid product development system supporting enterprises’ products innovation. With the support of this system, the anti-clogging irrigation emitters invented by the Institute of Advanced Manufacturing Technology, XJTU have found widespread applications in agricultural water-saving irrigation.

Based on these research fruits, in the past few years, Prof. Lu bingheng has won a series awards including: a fist-grade MOE Award for Scientific and Technological Progress in 1998, a second-grade National Award for Scientific and Technological Progress in 2000, a first-grade Shaanxi provincial Science and Technology Award in 2004, and a second-grade National Award for Technological Invention in 2005.

Prof. Lu has also won the following honors: the title of “Outstanding Scholar with Doctorate in China” conferred by the Degree Committee of the State Council in 1997, a “5.1” Labor Medal by All-China Federation of Labor Unions in 2001, the Outstanding Contributor to the State Key Scientific Research Projects during the 9th Five-Year plan by the Ministry of Science & Technology, and the Technology Achievement Award in 2001.

In addition, Prof. Lu is also the chief compiler of the textbook 《 Fundamentals of Machinery Manufacturing Technology》, a state planned teaching material in the 9th and 19th Five-Year plans, and published more than 400 papers, among them 100 and more were collected by SCI and EI.

Prof. Zhang Shulian

Prof. Zhang Shulian, male, professor works at Tsinghua University. Bachelor degree and master degree of Tsinghua University, The director of The Key Lab of Precision Measurement Technology and Instruments at Tsinghua University from Feb. 1997 to Apr. 2008 and the director of Optic-Electrical Engineering Institute of Tsinghua University from Aug. 1993 to Apr. 2004. Member of SPIE, Vice director of The Geometry Quantity Committee, Vice director of The Optic-electrical Technology, Vice-director-committeeman of Journal “Infrared and Laser Engineering”.



Research field: laser technology and metrology.

Publications: Papers: More than 200; Patents: More than 30; Book: “Applied Laser Technologies”, Zhejiang University Press, 1994; Monograph: “Fundamental of Orthogonally Polarized Lasers”, Tsinghua University Press, 2005.

Awards: (1) National Second Class Science and Technology Award (2007): “Orthogonally Polarized Lasers and Their Instruments”; (2) First Class Science and Technology Award of National Education Ministry (2006): “Cavity Tuning Characteristics of Two-mirror and Three Mirror Lasers”;(3) First Class Science and Technology Award of National Education Committee (1994): “Laser Frequency Splitting Phenomena and Application In Metrology”; (4) Second Class Beijing Science and Technology Award (2000): “Two Polarization Frequency Competition Displacement Sensing Laser System”.

Prof. Heui Jae Pahk

Prof. Heui Jae Pahk, Seoul National University

Biography

School of Mechanical and Aerospace Eng, Seoul National University, Korea (BSc, MSc)
Dept. of Mechanical Engineering, University of Manchester, UK (PhD)

Research Associate, University of Manchester, UK (1990-1991)

Assistant Professor, Pohang University of Science and Technology, Korea(1991-1993)

Professor, Seoul National University, Korea(1993-Present)

Director of University-Industry Research Consortium, Seoul National University(2000-Present)

Founder and CEO of SNU Precision Corp, now registered in Korean Stock Board (1998-Present)



Prof. Pahk is expert in precision metrology including optics, mechatronics, precision design, mechanical and electrical system, etc. He authors over 200 technical papers for International and Domestic Journal and Proceedings, and also owns about 30 International/Domestic Patents. He also receives several Excellency Awards including Presidential Medals from Korean Government, Academic Societies, and Asia-Pacific Business Forums for his R&D and Business Development. Also he has received several honorary awards for his donation of several scholarships for students and researchers for universities including Seoul National University.

Prof. Yusaku FUJII

Yusaku FUJII was born in Tokyo, Japan, in 1965. He received the B.E., M.E. and Ph.D. degrees from Tokyo University, Tokyo, Japan, in 1989, 1991 and 2001, respectively. He is currently the professor of Electronic Engineering at Gunma University.

<Work Experience>

1991-1995: Kawasaki Steel Corp., Japan

1995-2001: National Research Laboratory of Metrology (NRLM), AIST, Japan

2001-2002: AIST (National Institute of Advanced Industrial Science and Technology)

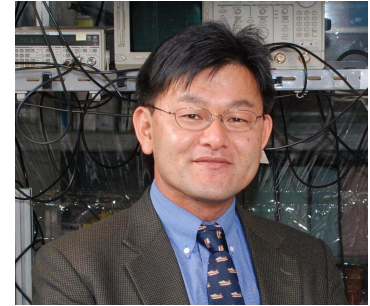
2002-: Gunma University

<Major Research Field>

Prof. Yusaku Fujii has studied the wide fields, such as the instrumentation engineering, the mechanical engineering, the applied physics and the absolute determination of the fundamental constants. His major research subjects are as follows,

- Instrumentation engineering
- Optical measurement
- Low temperature experiment
- Plasticity dynamics
- The e-JIKEI Network (invention and development)
- Mechanical quantities measurement
- The Levitation Mass Method (invention and development)
- Fluid dynamics
- Numerical calculation

www.e-jikei.org



Prof. Ren C. Luo

Ren C. Luo (M'83–SM'88–F'92) received the Ph.D. degree in electrical engineering from the Technische Universitaet Berlin, Berlin, Germany, in 1982. He was the President of National Chung Cheng University in Taiwan. He is currently the Lifetime Distinguished Professor in the Department of Electrical Engineering at National Taiwan University. He was a Professor of Department of Electrical and Computer Engineering at North Carolina State University, Raleigh, NC, USA and Chair Professor in the University of Tokyo, Japan.

His research interests include sensor-based intelligent robotic systems, multisensor fusion and integration, computer vision, micro/nano technologies, rapid prototyping, and advanced manufacturing systems. He has authored more than 300 papers on these topics, which have been published in refereed technical journals and conference proceedings. He also holds of several patents. Dr. Luo received IEEE Eugean Mittlemann Outstanding Research Achievement Award, 1996; ALCOA Foundation Outstanding Engineering Research Award, NCSU, USA; National Science Council Outstanding Research Awards, 1998-1999, 2000-2001, 2002-2005; TECO Outstanding Science and Technology Research Achievement Award, 2001. Dr. Luo is currently Editor-in-Chief of IEEE/ASME TRANSACTIONS ON MECHATRONICS. He served as President of IEEE Industrial Electronics Society (2000-2001). He also served as President of Chinese Institute of Automation Engineers, Convener of Automation Technology Division, National Science Council; Adviser of Ministry of Economics Affairs and Adviser of Prime Minister's Office in Taiwan.

He contributes regularly to international conferences by serving as General Chairs (IEEE IROS1992, MFI1994, IECON 1996, MFI1999, ICRA2003, IECON2007), program chairs, program committees, and offers short courses or tutorials and plenary/keynote speeches in various countries and research communities. Dr. Luo is a Fellow of IEEE since 1992, a Fellow of IEE since 2002.



Opening Session

August 26, 8:30~12:00 (Large Lecture Hall, Academic Activities and Conference Center, HFUT)

Opening Ceremony (8:30 ~ 9:10)

Chairman: Prof. Kuang-Chao Fan, Changjiang Scholar of Hefei University of Technology, Professor of National Taiwan University

Prof. Fei Yetai (General Chair of ISPMM), Hefei University of Technology

Prof. Yongsheng Gao (Co-Chairman of ISPMM) The Hong Kong University of Science and Technology

Prof. Heui Jae Pakk (Co-Chairman of ISPMM) Seoul National University

Prof. Guofan Jin (Honorary Chairman of ISPMM) Academician, Chinese Academy of Engineering, Tsinghua University

Prof. Congwei Xu (Honorary Co-Chairman of ISPMM) President of Hefei University of Technology

Prof. Shenghua Ye (Honorary Co-Chairman of ISPMM) Academician, Chinese Academy of Engineering, Tianjin University, China

Keynote Session 1, Chairman: Prof. Kuang-Chao Fan

9:00 ~ 9:40 “Limits of precision measurements based on interferometers”

Prof. Gerd. Jäger, Technical University of Ilmenau, Germany

9:40~ 10:20 “Manufacturing and measurement technologies”

Prof. Bingheng Lu, Academician, Xi'an Jiaotong University, China

10:20 ~ 10:40

Coffee Break

Keynote Session 2, Chairman: Prof. Kuang-Chao Fan

10:40 ~ 11:20 “Precision Measurement Development Based on Orthogonal Polarized Laser Technology ”

Prof. Shulian Zhang, Tsinghua University, China

11:20 ~ 12:00 “From University Lab Venture to Global Market Leader in Precision Metrology”

Prof. Heui Jae Pakk, Seoul National University, Korea

12:00 ~ 13:30 Lunch

Oral Session 1

August 26, 13:30 ~ 15:30 (Academic Activities and Conference Center, HFUT)

A1 (Large Lecture Hall)	Geometric Parameters Measurements (I)
<p>Chairman: Prof. H. J. Pahk & Prof. Shulian Zhang</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>A1-1 “An Auto-focusing System for White Light Microscopic Measurement” (G1001) <i>Ming Chang, Chung Yuan Christian University, Taiwan, China</i></p> <p>A1-2 “Phase compensation approach for estimating modulation peak in white light interferometry” (G1002) <i>Ming Chang, Chung Yuan Christian University, Taiwan, China</i></p> <p>A1-3 “Automatic leveling procedure by use of the spring method in measurement of three-dimensional surface roughness” (E1001) <i>Syuhei Kurokawa, Kyushu University, Japan</i></p> <p>A1-4 “A multiple three-step color phase-shifting method for 3D shape measurement” (G1003) <i>Tien-Tung Chung, National Taiwan University, Taiwan, China</i></p> <p>A1-5 “Grey Signal Processing and Data Reconstruction in the Non-diffracting Beam Triangulation Measurement System” (H018) <i>Zhongyu Wang, Beihang University, China</i></p> <p>A1-6 “The measurement method of micro-involute spur gear based on micro-vision” (G093) <i>Zhijing Zhang, Beijing Institute of Technology, China</i></p>	
B1 (Meeting Room 2)	Mechanics Measurement
<p>Chairman: Prof. Y. Fujii & Prof. Wenhao Huang</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>B1-1 “Evaluation of the crack growth characteristics of glass and ceramics based on crack length measurement using an ion-sputtered film” (A1001) <i>Gang Deng, University of Miyazaki, Japan</i></p> <p>B1-2 “Suspension system design study for a tuning fork vibratory MEMS gyroscope” (C020) <i>Yongpeng Wen, Tongji University, China</i></p> <p>B1-3 “Research and Application of Automatic Gyrostatic Tracking Orientation Program of Y/JTG-1 Gyro-Total-Station” (E002) <i>Baxing Fan, Information Engineering University, China</i></p> <p>B1-4 “Digital Laser Microferoscope for NDT” (G1011) <i>Michael Schuth and Frank Vössing, University of Applied Sciences and OPTOTRON, Germany,</i></p> <p>B1-5 “Recent Developments of Digital Speckle Pattern Interferometry for Full-Field Strain Measurement” (G1012) <i>Lianxiang Yang, Oakland University, USA</i></p> <p>B1-6 “On-line inspection of weld quality based on dynamic resistance curve in resistance spot welding and weldbonding” (E029) <i>Haitao Sun, Shanghai Jiao Tong University, China</i></p>	

C1 (Small Lecture Hall)	Intelligent System & Sensors (I)
<p>Chairman: Prof. Yongsheng Gao & Prof. Rongsheng Lu</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>C1-1 “A comparison of polymer composites for development of flexible sensor array” (D1008) <i>Wen-Pin Shih, National Taiwan University, Taiwan, China</i></p> <p>C1-2 “A Wireless Flexible Temperature and Tactile Sensing Array for Robot Applications” (D1013) <i>Yao-Joe Yang, National Taiwan University, Taiwan, China</i></p> <p>C1-3 “Sense and Control of a Companion Robot” (D1010) <i>Fu-Cheng Wang and Hsiao-Wu Wang, National Taiwan University, Taiwan, China</i></p> <p>C1-4 “The Design of the Intelligent Monitoring System for the Dam’s Safety” (E065) <i>Chen-guang Jiang, Jiangnan University, China</i></p> <p>C1-5 “The Design and Implementation of a Flexible FPGA/DSP Based Architecture for Real-time Image Processing” (G020) <i>Xuedong Jia, Information Engineering University, China</i></p> <p>C1-6 “Multi-sensor Cooperative Measurement Mechanism Based on Synergetics” (H051) <i>Xiaobin Hong, South China University of Science and Technology, China</i></p>	
D1 (Meeting Room 3)	Motion Control
<p>Chairman: Dr. A. K. Forrest & Prof. Zhongyu Wang</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>D1-1 “Development of a 2-axis Closed Loop Micro-/Nano- Positioning Stage Embedded with 2 Fiber Optical Interferometer Systems” (C1001) <i>Fang-Jung Shiou, National Taiwan University, Taiwan, China</i></p> <p>D1-2 “Analysis and experimentation of novel asymmetric photo-thermal micro-actuator” (D025) <i>Chao Liu, Zhejiang University, China</i></p> <p>D1-3 “A Robust Control Scheme of Nanopositioning Driven by Ultrasonic Motor” (E040) <i>Fang Cheng, Hefei University of Technology, China</i></p> <p>D1-4 “Control of Cutting Speed in Turning Process with Varying Cutting Parameter for Surface Roughness” (E1003) <i>Jong-Hwan Choi, Pukyong National University, KOREA</i></p> <p>D1-5 “Effect on measurement precision of multi-pass heterodyne interferometer by acceleration and compensation method” (G070) <i>Hongfang Chen, Beijing University of Technology, China</i></p> <p>D1-6 “Inertial force measurement of an actuator arm of a hard disk drive in free oscillation by numerical analysis and experiments” (F1003) <i>Bin Gu, Nanyang Technological University, Singapore</i></p>	

15:30 ~ 16:00 Coffee Break

Oral Session 2

August 26, 16:00 ~ 18:20 (Academic Activities and Conference Center HFUT)

A2 (Large Lecture Hall)	Geometric Parameters Measurements (II)
<p>Chairman: Prof. Ming Chang & Dr. John Song</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>A2-1 “Development of fiber-based digital confocal three-dimensional surface profilometry” (C1007) <i>Liang-Chia Chen and Chih-Hung Huang, National Taipei University of Technology, Taiwan, China</i></p> <p>A2-2 “3D measurement system of micro organization based on two-ray-path scanning”(G084) <i>Chao Liu, Zhejiang University, China</i></p> <p>A2-3 “Shape-from-focus 3D measurement with image alignment”(G1006) <i>Chih-Hsiang Chan, National Tsing-Hua University, Taiwan, China</i></p> <p>A2-4 “The miniaturization techniques of optical remote sensors” (G099) <i>Weihu Zhou, Academy of Opto-electronics, CAS, China</i></p> <p>A2-5 “Calculation Technology of Special Tank Capacity Based on Setting-out” (E003) <i>Baxing Fan, Information Engineering University, China</i></p> <p>A2-6 “Effect of ambient light on surface roughness inspection” (E050) <i>Zixin Chen, Southeast University, China</i></p> <p>A2-7 “New Method of Thin-Film Thickness Measurement in Wavelength Scanning Interferometry” (D1014) <i>Heui Jae Pakk, Seoul National University, Korea</i></p>	
B2 (Meeting Room 2)	Quality Assurance
<p>Chairman: Prof. Lianxiang Yang & Prof. Zhaoyao Shi</p> <p>Paper Presentation: (20 minutes for each presentation, including 5 min. of answering questions)</p> <p>B2-1 “Constraints in measuring body mass during simulated microgravity” (F1009) <i>SHIMADA, Kazuhito, Japan Aerospace Exploration Agency (JAXA), Japan</i></p> <p>B2-2 “Using virtual instruments to develop an actuator-based hardware-in-the-loop simulation test-bed for autopilot of unmanned aerial vehicle” (E1002) <i>Yun-Ping Sun, Cheng Shiu University, Taiwan, China</i></p> <p>B2-3 “Analysis of Key Technologies for Virtual Instruments Metrology” (I011) <i>Qingui Xu, South China University of Technology, China</i></p> <p>B2-4 “Error modeling for Tailored Blank Laser Welding machine” (I010) <i>Liming Xin, Shenyang Institute of Automation, Chinese Academy of Science, China</i></p> <p>B2-5 “Key technology of GPS standards integrated in CAX” (J026) <i>Rongmao Zheng, South China University of Technology, China</i></p> <p>B2-6 “Quality Evaluation and Optimization of Freeform Surface”(J019) <i>Changcai Cui, Huaqiao University, China</i></p>	
C2 (Small Lecture Hall)	Intelligent System & Sensors (II)

Chairman: Prof. Yao-Joe Yang & Prof. Wenhao Huang

Paper Presentation:

(20 minutes for each presentation, including 5 min. of answering questions)

C2-1 “Removal of repeated objects in multi channel images” (G1013)

A.K. Forrest, Imperial College, U.K

C2-2 “Pose-Variant Facial Expression Recognition Using an Embedded Image System” (D1009)

Meng-Ju Han, National Chiao Tung University, Taiwan, China

C2-3 “Early Detecting and Protecting of Fault Arcs Based on Multi-Signals” (E013)

Jian-hong Yang, Huaqiao University, China

C2-4 “Support Vector Machine Based Artificial Potential Field for Autonomous Guided Vehicle” (H1003)

Jr-Syu Yang, Tamkang University, Taiwan, China

C2-5 “The Weight and Angle of Depression Detection and Control System of a Large Portal Crane” (H045)

Lianwen Shi, Tangshan Industrial Vocational Technology College, China

C2-6 “Optimal road bump for pleasant speed reduction” (H1004)

Pingyu Zhu, Hunan University of Science and Technology, China

**D2
(Meeting Room 3)**

CMM & Others

Chairman: Prof. G. Jäger & Prof. Liandong Yu

Paper Presentation:

(20 minutes for each presentation, including 5 min. of answering questions)

D2-1 “Development of a touch trigger probe for Micro/nano CMM” (C029)

Weili Wang, Hefei University of Technology, China

D2-2 “Development of a low-cost micro-CMM with nanoscale touch trigger probe and novel optical encoder” (C1004)

Chih-Liang Chu, Yu-Hung Liou, Southern Taiwan University, Taiwan, China

D2-3 “Re-constructible CMM Software System Modeling and Its Implementation” (B003)

Yuewei Bai, Shanghai Second Polytechnic University, China

D2-4 “A methane gas sensor using correlation spectroscopy” (D010)

Fang Liang, Yanshan University, China

D2-5 “A Surface Intrinsic Feature Based Method (SIFBM) for the Characterization of Optical Microstructure” (G1014)

Chi Fai Cheung, The Hong Kong Polytechnic University, Hong Kong, China

D2-6 “A White-Light Photoelastic Method for Residual Stress Analysis of PMMA Thin Plates by Injection Molding” (G1007)

Jr-Rung Chen, Chao-Chang A. Chen and Horng-Shing Chiou, National Taiwan University of Science and Technology, Taiwan, China

D2-7 “A Computational Fluid Dynamics Study on Gas-Liquid Two-Phase Flow for In-Process Optical Measurement” (H1006)

Yongsheng Gao, Hong Kong University of Science and Technology, Hong Kong, China

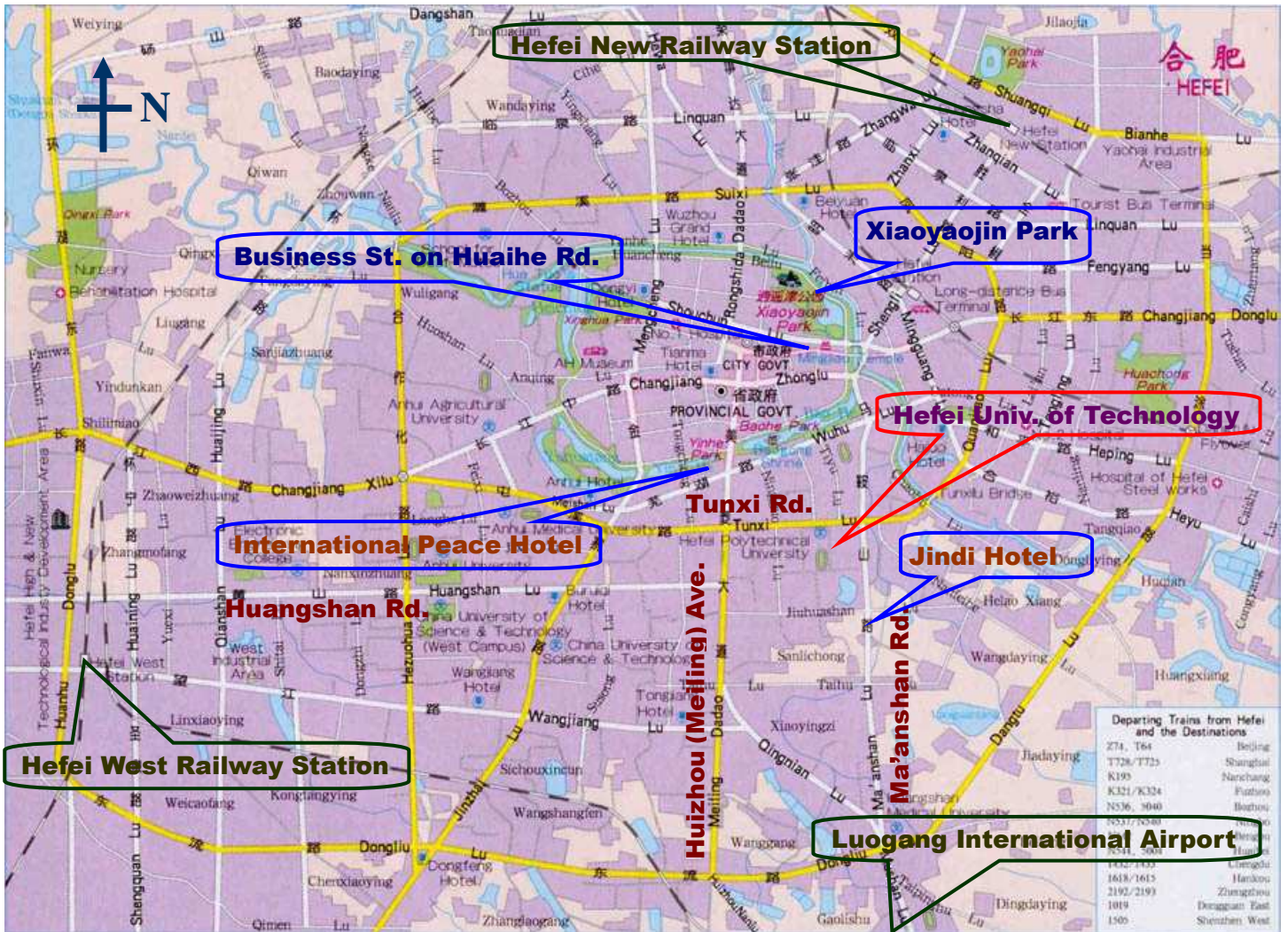
Keynote Session, Poster Paper Presentation & Closing Session

August 27, 8:30~12:30 (Large Lecture Hall, Academic Activities and Conference Center, HFUT)

Keynote Session 3, Chairman: Prof. Yongsheng Gao	
8:30 ~ 9:10	“Precision force measurement using the Levitation Mass Method (LMM)” <i>Prof. Yusaka Fujii, Gunma University, Japan</i>
9:10 ~ 9:50	“Precision Measurement Development Based on Orthogonal Polarized Laser Technology” <i>Prof. Ren C. Ruo, National Taiwan University, Taiwan, China</i>
9:50 ~ 11:10	Poster Paper Presentation & Coffee Break
Invited Speech, Chairman: Prof. Yongsheng Gao	
11:10~11:40	“NIST Microform Calibration System for Rockwell Hardness Standardization” <i>Prof. John Song, National Institute of Standards and Technology (NIST), U.S.A</i>
11:40 ~ 12:10	Exhibitors presentation Chairman: Prof. Yongsheng Gao
12:10 ~ 12:30	Closing Ceremony Chairman: Prof. Yongsheng Gao

12:30 ~ 14:00 Lunch

City Map



Hefei University of Technology, one of the key universities in China, member of project 211, is directly under the Ministry of Education. It is located in Hefei, the capital of the Anhui Province, which is also known as a green city and as an important base of science and education in China.

Luogang International Airport => Hefei University of Technology (Southern Campus)

Taxi fee: about RMB 20yuan

Hefei New Railway Station => Hefei University of Technology (Southern Campus)

Bus 101, 149, and 226 (to Hegong Da-HFUT Main Gate), 902 (to Xiegang-HFUT East Gate)

Taxi Fee: about RMB 16yuan

Hefei West Railway Station => Hefei University of Technology (Southern Campus)

Bus 111 Taxi fee: about RMB 18yuan

International Peace Hotel It is located in the center of Hefei city where Huizhou Ave. (Meiling Ave.) and Wuhu Road merge. The airport is just 8 kilometers away, the railway station 6 kilometers, and the intercity bus terminal only four kilometers away. On its east is Baohe Park, and on its west lies Yinhe Scenic Area.

Luogang International Airport => International Peace Hotel

Taxi fee: about RMB 16yuan

Hefei New Railway Station => International Peace Hotel

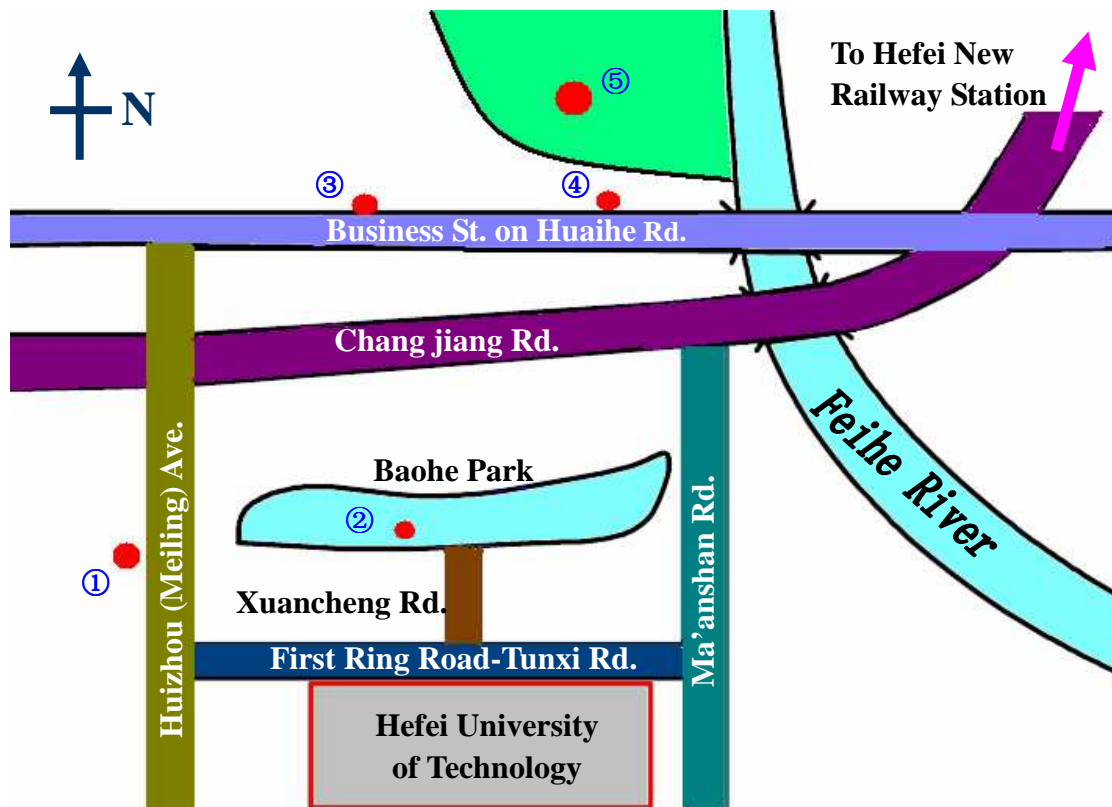
Taxi fee: about RMB 12yuan

Hefei West Railway Station => International Peace Hotel

Taxi fee: about RMB 18yuan

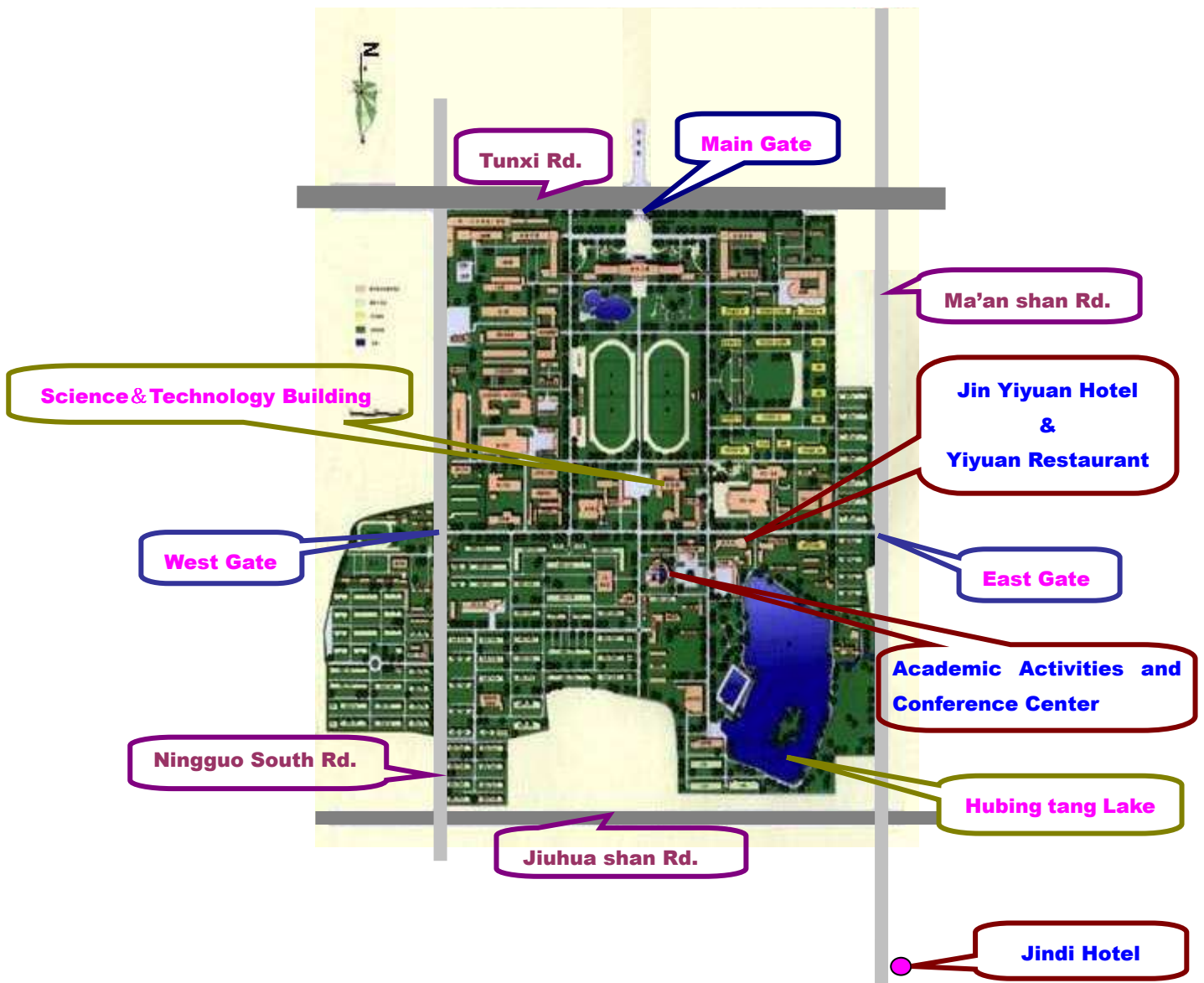
http://www.maps-of-china.net/c_hefei_map.html

Local Map



- ① **International Peace Hotel:** A four-star hotel well suited for hosting foreign guests. The hotel enjoys convenient transportation and serene environment.
- ② **Lord Bao's Memorial Temple:** Located along the lakeside of Baogong (Lord Bao), the temple was built to commemorate Lord Bao Zheng (999-1062), an upright official of the Kaifeng Government during the Northern Song Dynasty (960-1127). The temple covers 1, 000 square meters in area. The main hall enshrines a statue of Lord Bao and introduces the life of Bao Zheng.
- ③ **Li Hongzhang's Memorial Hall:** Li was an important military and political official in the late Qing Dynasty. He was born in 1823 in Hefei. He died in 1901 in Beijing and was buried in Hefei. The houses that belong to the Li family occupied a huge place. This former residence, about 2000 square meters (about 21.5 thousand square feet), is only a part of them. The houses are typical late Qing style. Li's former residence opens to public since September 27, 1999.
- ④ **Mingjiao Temple:** Mingjiao Temple is one of China's most famous temples and is a state protected Buddhist temple. The temple was built during the Tang Dynasty and is known for the many bells in the eaves of the temple that ring on windy days. There are also over 30 Buddhist statues located throughout the many halls. One of the Kings of the Wei Kingdom, Caocao, also started his campaign here before he became King and drilled his troops here before he went to war with Sun Quan's Wu Kingdom. Caocao, these days, is known for playing a major part in the Three Kingdoms' and for playing a role in the Chinese version of 'Speak of the Devil'.
- ⑤ **Xiaoyaojin Park:** Located in the northeastern old city of Hefei. Xiaoyaojin Park is well known as a famous battlefield in the period of the Three Kingdoms (220-265). Now this area was turned into a park. The tomb of a famous general-Zhang Liao is perfectly protected here. The statue of him seated upon his horse is erected in the park. Besides those, the Feiji Bridge has been rebuilt already, which adds the charm of the Leisure Ford Park.

Campus Map of HFUT



Banquet Site Map

